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     (FILE 'HOME' ENTERED AT 14:41:52 ON 27 SEP 2003)

     INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA,
     CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB,
     DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 14:42:03 ON
     27 SEP 2003
                SEA (ATP SYNTHASE INHIBITOR) OR IF1
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              15   FILE AGRICOLA
               1   FILE ANABSTR
               1   FILE BIOBUSINESS
             220   FILE BIOSIS
              16   FILE BIOTECHABS
              16   FILE BIOTECHDS
              70   FILE BIOTECHNO
              14   FILE CABA
              19   FILE CANCERLIT
             330   FILE CAPLUS
               1   FILE CEABA-VTB
               6   FILE CONFSCI
               5   FILE DDFU
              68   FILE DGENE
               1   FILE DRUGMONOG2
              10   FILE DRUGU
               1   FILE EMBAL
             152   FILE EMBASE
              63   FILE ESBIOBASE
               6   FILE FEDRIP
               2   FILE FSTA
             160   FILE GENBANK
              70   FILE IFIPAT
               3   FILE JICST-EPLUS
              81   FILE LIFESCI
             188   FILE MEDLINE
               9   FILE NTIS
              91   FILE PASCAL
               1   FILE PHAR
               1   FILE PHIN
               3   FILE PROMT
               4   FILE RDISCLOSURE
             192   FILE SCISEARCH
              70   FILE TOXCENTER
             782   FILE USPATFULL
              19   FILE USPAT2
               1   FILE VETU
             123   FILE WPIDS
             123   FILE WPINDEX
L1             QUE (ATP SYNTHASE INHIBITOR) OR IF1
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     FILE 'USPATFULL, CAPLUS, BIOSIS, SCISEARCH, MEDLINE, EMBASE, WPIDS'
     ENTERED AT 14:45:34 ON 27 SEP 2003
L2           22 S L1 AND DIABETES
L3           15 DUP REM L2 (7 DUPLICATES REMOVED)
L4          160 S (ATP SYNTHASE) AND IF1
L5            8 S L4 AND DIABETES
L6            5 DUP REM L5 (3 DUPLICATES REMOVED)
L7       181213 S FUSION PROTEIN
L8           77 S L7 AND IF1
L9           13 S L8 AND DIABETES
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L10	10	DUP REM L9 (3 DUPLICATES REMOVED)
L11	11	S L8 AND (ATP SYNTHASE)
L12	8	DUP REM L11 (3 DUPLICATES REMOVED)

L12 ANSWER 4 OF 8 USPATFULL on STN

ACCESSION NUMBER: 2002:340243 USPATFULL

TITLE: **Fusion proteins** comprising coiled-coil structures derived of bovine **IF1** ATPase inhibitor protein

INVENTOR(S): Walker, John, Cambridge, UNITED KINGDOM
Miroux, Bruno, Cambridge, UNITED KINGDOM

PATENT ASSIGNEE(S): Medical Research Council, London, UNITED KINGDOM (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6498020	B1	20021224
APPLICATION INFO.:	US 1999-464152		19991227 (9)

RELATED APPLN. INFO.: Continuation of Ser. No. WO 1998-GB2041, filed on 10 Jul 1998

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1997-14680	19970711

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Wehbe' , Anne M.
ASSISTANT EXAMINER: Li, Q. Janice
LEGAL REPRESENTATIVE: Williams, Kathleen M., Palmar & Dodge, LLP
NUMBER OF CLAIMS: 9
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 1818
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to a **fusion protein** comprising a first amino acid sequence comprising the sequence of the C-terminal 40 amino acids of bovine IF.sub.1 ATPase inhibitor protein, and a second amino acid sequence not naturally associated with the first region. The invention further relates to methods for preparing an immunoglobulin comprising immunizing an animal with the **fusion protein** and recovering immunoglobulin specific for a region of the **fusion protein**.

L12 ANSWER 7 OF 8 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1999-120909 [10] WPIDS
DOC. NO. NON-CPI: N1999-088151
DOC. NO. CPI: C1999-035508
TITLE: A new **fusion protein** for production of small recombinant polypeptides - contains coiled-coil structures of bovine IF.
DERWENT CLASS: B04 D16 S01
INVENTOR(S): MIROUX, B; WALKER, J
PATENT ASSIGNEE(S): (MEDI-N) MEDICAL RES COUNCIL
COUNTRY COUNT: 82
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9902708	A1	19990121	(199910)*	EN	62
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
AU 9882345	A	19990208	(199924)		
EP 1002105	A1	20000524	(200030)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
JP 2001509391	W	20010724	(200147)		61
AU 740816	B	20011115	(200202)		
US 6498020	B1	20021224	(200303)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9902708	A1		WO 1998-GB2041	19980710
AU 9882345	A		AU 1998-82345	19980710
EP 1002105	A1		EP 1998-932417	19980710
			WO 1998-GB2041	19980710
JP 2001509391	W		WO 1998-GB2041	19980710
			JP 2000-502202	19980710
AU 740816	B		AU 1998-82345	19980710
US 6498020	B1	Cont of	WO 1998-GB2041	19980710
			US 1999-464152	19991227

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9882345	A	Based on	WO 9902708
EP 1002105	A1	Based on	WO 9902708
JP 2001509391	W	Based on	WO 9902708
AU 740816	B	Previous Publ.	AU 9882345
		Based on	WO 9902708

PRIORITY APPLN. INFO: GB 1997-14680 19970711
AB WO 9902708 A UPAB: 19990412
A new **fusion protein** comprises: (a) a first region (R1) comprising the 40 amino acid C-terminal of bovine **IF1** ATPase inhibitor protein, or it's derivative; and (b) a second region (R2), not naturally associated with R1, comprising a polypeptide sequence of interest.

Also claimed are: (i) a nucleic acid (N1) encoding the **fusion protein**; (ii) an expression vector comprising N1 operably linked to a promoter, which will express N1 in a host cell and a

cloning site permitting insertion of a second nucleic acid sequence which is expressed in fusion with N1; (iii) a host cell comprising one of the above expression vectors; (iv) a method of preparing a **fusion protein**, comprising: (a) obtaining the above host cell; (b) culturing the cell under expression conditions; and (c) recovering the **fusion protein**; (v) a polypeptide prepared by the above method; (vi) a method for preparing an immunoglobulin, comprising: (a) immunising an animal with the **fusion protein**; and (b) recovering immunoglobulin specific for a region of the **fusion protein** from serum of the animal.

USE - Use for the **fusion protein** in NMR studies is claimed. The **fusion protein** is used to manufacture small recombinant polypeptides, such as fragments of chaperone proteins, metabolic enzymes, DNA and RNA binding proteins, antibodies, viral proteins, intrinsic membrane proteins including mitochondrial transport proteins, seven-helix receptor molecules and T-cell receptors, cytoskeletal complexes, antibody binding peptides, peptide hormones, and small subunits from multi-subunit structures such as respiratory enzymes and **ATP synthase**.

ADVANTAGE - The fusion partner protein of the invention is smaller than those of prior art, allowing the protein of interest to function with a degree of independence.

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L12 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1993:229085 CAPLUS

DOCUMENT NUMBER: 118:229085

TITLE: Regulation of the mitochondrial **ATP synthase**/ATPase complex: cDNA cloning, sequence, overexpression, and secondary structural characterization of a functional protein inhibitor

AUTHOR(S): Lebowitz, Michael S.; Pedersen, Peter L.

CORPORATE SOURCE: Dep. Biol. Chem., Johns Hopkins Sch. Med., Baltimore, MD, 21205, USA

SOURCE: Archives of Biochemistry and Biophysics (1993), 301(1), 64-70
CODEN: ABBIA4; ISSN: 0003-9861

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The ATPase inhibitor protein of the rat liver mitochondrial **ATP synthase**/ATPase complex has been cloned from a rat liver cDNA library, and its nucleotide sequence detd. The sequence is highly homologous to both the bovine heart (.apprx.70%) and the yeast inhibitor proteins (.apprx.40%). The deduced protein sequence is 107 amino acids in length, and based on homol. to the bovine heart protein, the first 25 N-terminal amino acids encode a putative mitochondrial targeting sequence. The mature protein (without the targeting sequence) fused to the maltose-binding protein has been overexpressed in Escherichia coli. The maltose-binding protein was used as a handle for the development of a rapid one-step purifn. of the **fusion protein** by affinity chromatog. on an amylose resin. The purified **fusion protein** was cleaved with Factor Xa protease at the fusion junction, and the resulting ATPase inhibitor protein was purified to >90% purity. The purified, overexpressed inhibitor protein displays normal inhibitor activity. The protein inhibits ATP hydrolysis catalyzed by the **ATP synthase**/ATPase complex in submitochondrial particles in a manner kinetically indistinguishable from the same protein purified from rat liver mitochondria, and exhibits a specific activity of .apprx.10,000 units/mg. The secondary structure of the inhibitor protein was detd. by CD spectropolarimetry. The exptl. detd. structure shows a high content of .alpha.-helix and is in good agreement with sequence-based structural predictions. As the function of the inhibitor protein is known to exhibit a high dependence on pH, a study of the pH dependence of inhibitor secondary structure was performed. It is shown that as pH is

lowered, conditions which activate inhibitory capacity, the protein loses significant .alpha.-helical structure. This is the first report of the overexpression in E. coli of a functional ATPase inhibitor protein. Secondary structural anal. of this protein indicates that conversion from its active to its inactive form involves a significant conformational change.